



United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

The Honorable Darrell Issa
Chairman, Committee on Oversight
and Government Reform
House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

Thank you for the opportunity to respond to the Government Accountability Office's recommendations as presented in the report entitled *ENERGY-WATER NEXUS: A Better and Coordinated Understanding of Water Resources Could Help Mitigate the Impacts of Potential Oil Shale Development* (GAO-11-35).

The Department of the Interior (DOI) fully supports the concepts in the GAO report and agrees with the need to answer the science questions associated with commercial oil shale production prior to commercial development. The report focused on the research and coordination efforts of the Bureau of Land Management (BLM) and the U.S. Geological Survey (USGS) related to oil shale development. It is important to note that within the Piceance Basin, natural gas and oil development is occurring contemporaneously with oil shale research and development activities. Within the DOI, the BLM is responsible for managing research, development, and demonstration (RD&D) leases for commercial oil shale development on public lands. The USGS has the technical capabilities to evaluate the environmental impact of those developments on water resources. We agree that baseline data on water resources conditions are needed prior to commercial development of oil shale resources. We also emphasize that industry has not developed a commercially and environmentally viable method for development of oil shale resources and development may not be feasible until well into the future. Thus, sufficient time exists to determine baseline water resources conditions and develop a water resources monitoring plan, implement that plan, and improve our understanding of the groundwater and surface water systems prior to large-scale development of the resource. A long term approach to addressing this issue is warranted.

In 2008, the BLM published regulations to guide any future commercial-scale oil shale development. The regulations include provisions related to the conversion of Research Development and Demonstration leases into commercial leases, the general commercial leasing process, bonding, royalty, and diligence. Additionally, in 2008, the BLM published a Final Programmatic Environmental Impact Statement that amended 10 land-use plans in Utah, Colorado, and Wyoming to make nearly 2 million acres of public lands available for potential commercial oil shale development.

The BLM is committed to a robust program of research and development to advance technologies for the recovery of oil-shale resources and, as the process continues, is launching new public planning and rulemaking processes to take a second look at the 2008 regulations and land-use plan amendments. The public planning process will allow the BLM to take a fresh look at what public lands are best suited for oil shale and tar sands development. The public will be invited in the planning process to submit their comments and concerns, and final land-use decisions will be made in light of any new information about potential resource needs and impacts, and technological innovations. The public rulemaking process will allow the Department to consider whether the royalty rate for commercial oil shale production should be set only after more is known about emerging oil shale technologies, whether plans of operation for future applications to lease should include specified resource protection plans, and whether aspects of the existing regulations should be clarified to more clearly outline the lease application and conversion process. Through these processes, the BLM will seek to acquire any new information and data that could help in the implementation of some of the recommendations set out in GAO's report.

Enclosure 1 provides a summary of the actions taken and planned along with target dates and the names of officials responsible for implementing GAO's recommendations. Similar written statements are addressed to other members of Congress and the Federal officials listed in Enclosure 2.

If you have any questions, please contact LaVanna Stevenson-Harris, BLM Audit Liaison Officer, at 202-912-7088, or Rebecca Bageant, USGS Audit Liaison Officer, at 703-648-4328.

Sincerely,

Rhea Suh
Assistant Secretary
Policy, Management and Budget

Enclosures

Enclosure 1

Department of the Interior

Statement of Actions on the GAO Report: *ENERGY-WATER NEXUS: A Better and Coordinated Understanding of Water Resources Could Help Mitigate the Impacts of Potential Oil Shale Development* (GAO-11-35).

Recommendation 1: Establish comprehensive baseline conditions for groundwater and surface water quality, including their chemistry, and quantity in the Piceance and Uinta Basins to aid in the future monitoring of impacts from oil shale development in the Green River Formation.

Response: Implementation of this recommendation is already underway. As cited in the report, groundwater monitoring in five wells is ongoing in the Piceance Basin, and ten more wells are planned in 2012. Moreover, the U.S. Geological Survey (USGS) has created a public, internet-accessible water-quality data repository (<http://rmgsc.cr.usgs.gov/cwqdr>) of the area through coordination with energy industry and Federal, State, and local agencies. Evaluation of the data in this repository is ongoing, scheduled for completion by September 2012. This evaluation will provide an initial assessment of available water-resources data, and identify gaps in data necessary to establish baseline conditions. The evaluation also will include recommendations for developing regional water-monitoring strategies to fill these data gaps, minimize redundancies in data collection, and identify a monitoring program.

Implementation of the monitoring plan will be a long-term effort. Data gaps must be filled and five to ten years of data must be collected to establish comprehensive baseline conditions. Given the extensive data collection and research period that is estimated to be completed by 2022, the Bureau of Land Management (BLM) will enter into a Memorandum of Agreement (MOA) with the USGS to allow for long-term planning (targeted to be completed by December 30, 2011.) Implementation of this monitoring plan will progress as resources allow.

Two other ongoing DOI activities may provide data and information for this monitoring program. The Colorado River Focus Area Study, a new study proposed under DOI's WaterSMART Initiative, is planned as a 3-year effort that will provide an inventory of water supply and demand, including water needed to support ecosystems. This study will also report on significant competition over water resources and the factors causing that competition. Data and information from this study could be used under any Piceance and Uinta Basin monitoring program. Additionally, the DOI, through the Federal Advisory Committee on Water Information, is piloting a National Ground Water Monitoring Network for the Nation's principal and major aquifers. Groundwater level and groundwater-quality data from the Colorado Plateau principal aquifer will be a component of the proposed network. If resources are available to implement the network beyond the pilot phase, the Department of Energy (DOE) and State agencies will be invited to participate as data providers in this collaborative monitoring network.

Responsible Officials:

William Werkheiser, USGS, Associate Director for Water

Michael D. Nedd, BLM, Assistant Director, Minerals and Realty Management
Edwin Roberson, BLM, Assistant Director, Renewable Resources and Planning

Target Dates: December 31, 2011 to complete MOA
September 30, 2012 to complete monitoring plan (an assessment of data)

Recommendation 2: Model regional groundwater movement and the interaction between groundwater and surface water, in light of aquifer properties and the age of groundwater, so as to help in understanding the transport of possible contaminants derived from the development of oil shale.

DOI Response: The DOI agrees that baseline conditions should be established, and an understanding of regional groundwater movement and the interaction between groundwater and surface water is needed prior to the approval of large-scale oil shale development. This understanding often is achieved through numerical (computer) modeling. Construction of the numerical model will improve the understanding of the regional hydrologic system. This improved understanding will help in understanding the transport of possible contaminants derived from the development of oil shale. Model results also may guide future monitoring activities to ensure that hydrologic impacts from oil shale development are detected. An initial step in any such effort is to evaluate existing data to formulate a conceptual model of the hydrologic system. This conceptual model guides the development of any numerical model.

Given the timing of the baseline monitoring program and that of large-scale development of oil shale, the preferred approach to numerical modeling with respect to oil-shale development would be to use the results of the monitoring program described in Recommendation 1 to improve the conceptual understanding of the hydrologic system. This conceptual model would guide the initial numerical modeling approach—a regional groundwater model, surface-water model, or a coupled groundwater/surface-water model.

The above-mentioned USGS/BLM MOA is applicable to this recommendation as well. As resources allow, DOI will evaluate the results of the long-term monitoring efforts and collect other hydrologic information to determine the optimal numerical modeling approach needed to help in understanding the transport of possible contaminants derived from the development of oil shale. Implementation of numerical modeling will begin when the necessary data, information, and financial resources are available.

Responsible Officials:

William Werkheiser, USGS, Associate Director for Water
Michael D. Nedd, BLM, Assistant Director, Minerals and Realty Management
Edwin Roberson, BLM, Assistant Director, Renewable Resources and Planning

Target Date: September 30, 2013, Conceptual model in place

Recommendation 3: Coordinate with the DOE and State agencies with regulatory authority over water resources in implementing these recommendations, and to provide a mechanism for water-related research collaboration and sharing of results.

DOI Response: The DOI, through the activities of the USGS and the BLM, are coordinating with State agencies on these recommendations. Professional meetings are one venue where collaboration among DOI and DOE scientists occurs. DOE and DOI scientists participated in the 30th Oil Shale symposium hosted by the Colorado School of Mines in 2010. DOI scientists will continue to participate in these types of meetings to enhance coordination with the DOE. The USGS and the DOE currently collaborate on oil shale data collection and research. The USGS will contact the DOE so this ongoing collaboration can be expanded to include water-related research and data sharing.

Six new Research, Development and Demonstration (RD&D) leases on Federal land in Colorado and Utah will allow industry to test various technologies to determine if production can occur in commercial quantities, and to develop an accurate determination of potential water use for each technology. The BLM will evaluate three additional RD&D lease applications this year. As the results of the RD&D leases become known, non-proprietary information will be shared within the DOI and with the DOE. The shared information may include additional hydrologic information currently being collected.

Responsible Officials:

William Werkheiser, USGS, Associate Director for Water

Michael D. Nedd, BLM, Assistant Director, Minerals and Realty Management

Edwin Roberson, BLM, Assistant Director, Renewable Resources and Planning

Target Date: June 30, 2012

Enclosure 2

The Honorable Joseph I. Lieberman
Chairman
Committee on Homeland Security
and Governmental Affairs
United States Senate
Washington, DC 20510

The Honorable Daniel Inouye
Chairman
Committee on Appropriations
United States Senate
Washington, DC 20510

The Honorable Jack Reed
Chairman
Subcommittee on Interior, Environment
and Related Agencies
Committee on Appropriations
United States Senate
Washington, DC 20510

The Honorable Doc Hastings
Chairman
Committee on Natural Resources
House of Representatives
Washington, DC 20515

The Honorable Harold Rogers
Chairman
Committee on Appropriations
House of Representatives
Washington, DC 20515

The Honorable Michael K. Simpson
Chairman
Subcommittee on Interior, Environment
and Related Agencies
Committee on Appropriations
House of Representatives
Washington, DC 20515

The Honorable Susan M. Collins
Ranking Minority Member
Committee on Homeland Security
and Governmental Affairs
United States Senate
Washington, DC 20510

The Honorable Thad Cochran
Ranking Minority Member
Committee on Appropriations
United States Senate
Washington, DC 20510

The Honorable Lisa Murkowski
Ranking Minority Member
Subcommittee on Interior, Environment
and Related Agencies
Committee on Appropriations
United States Senate
Washington, DC 20510

The Honorable Edward Markey
Ranking Minority Member
Committee on Natural Resources
House of Representatives
Washington, DC 20515

The Honorable Norm Dicks
Ranking Minority Member
Committee on Appropriations
House of Representatives
Washington, DC 20515

The Honorable James P. Moran
Ranking Minority Member
Subcommittee on Interior, Environment,
and Related Agencies
Committee on Appropriations
House of Representatives
Washington, DC 20515

The Honorable Darrell Issa
Chairman
Committee on Oversight
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House of Representatives
Washington, DC 20515

The Honorable Gene Dodaro
Comptroller General
United States Government
Accountability Office
Washington, DC 20548

The Honorable Jeff Bingaman
Chairman
Committee on Energy
and Natural Resources
United States Senate
Washington, DC 20510

The Honorable Ralph M. Hall
Chairman
Committee on Science
and Technology
House of Representatives
Washington, DC 20515

The Honorable Andy Harris
Chairman
Subcommittee on Energy and Environment
Committee on Science
and Technology
House of Representatives
Washington, DC 20515

The Honorable Elijah Cummings
Ranking Minority Member
Committee on Oversight
and Government Reform
House of Representatives
Washington, DC 20515

The Honorable Jacob J. Lew
Director
Office of Management and Budget
Old Executive Office Building
Washington, DC 20503

The Honorable Lisa Murkowski
Ranking Member
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United States Senate
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The Honorable Eddie Bernice Johnson
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